

# THE AUGUST CYCLONE.

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A DESCRIPTIVE NARRATIVE OF THE  
MEMORABLE STORM OF

1885.

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SOME MENTION OF THE DESTRUCTION OF PROPERTY  
IN AND AROUND CHARLESTON—THE CHARACTER  
OF THE DISTURBANCE EXPLAINED, AND ITS PRO-  
GRESS TRACED FROM ITS ORIGIN IN THE  
WEST INDIES TO ITS DISAPPEARANCE IN  
THE NORTH ATLANTIC OCEAN,

BY CARL MCKINLEY, Esq.

TOGETHER WITH

A Brief Account of the Tornado of 1761.



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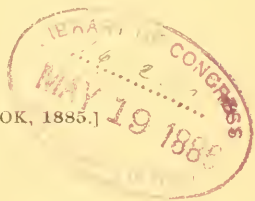
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## THE AUGUST CYCLONE—1885.

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The most notable event of the year 1885, in Charleston, and one which will form the subject of interesting reminiscence and comparison for years to come, was the disastrous storm which, originating in the West Indies and reaching the Carolina coast on the morning of August 25th, seemed to attack Charleston with especial fury, and threatened for a time to overwhelm the entire city in its own ruins. The damage inflicted by the winds and waves upon property in and around the city was indeed so great and so widely distributed as to preclude giving even a bare list of the more serious losses within the limits of this chapter. A detailed statement of such losses, together with many other interesting particulars of the storm, was published in *THE NEWS AND COURIER* on the days immediately following the storm, and constitute a record of permanent interest. The present narrative will be confined to a description of the storm as it appeared to eye witnesses, to such account of its ravages as will serve, in some degree, to illustrate its destructive force; and to recording the phenomena attendant upon its development. The course of the disturbance is also carefully traced upon a line coextensive with that of the Atlantic coast of the United States.

To the eye of the casual observer at Charleston there was nothing unusual in the appearance of the weather at any time before midnight of Monday, August 24th, to indicate the approach of a storm of any kind. The "indications" sent out by the Signal Service Office at Washington, dated 1 o'clock A. M. of the 24th, were: "For the South Atlantic States, local rains, variable winds, nearly stationary temperature." From 7 A. M. until 7 P. M., according to the Signal Service record, the direction of the wind at Charleston was from the East. At 10 P. M. it was from

the Southeast, and held in that quarter until after 7 A. M. on the 25th. The barometer, reduced to sea-level, ranged on Monday from 29.968 at 7 A. M. to 29.834 at 11 P. M. At 2.20 P. M. the following dispatch from the Signal Service Office at Washington was received by Sergeant James H. Smith, the Observer at Charleston:

"Up signals; fresh and strong East to North winds."

Cautionary signals were accordingly hoisted about 2.30 P. M.

This dispatch, as will be seen later, had reference to indications observed along the Florida sea coast, and foretold the character of the wind that might be expected within a few hours at Charleston, thus warranting the display of cautionary signals, and giving the first notice of the approach of the dread visitor whose true character was so little suspected, and the announcement of whose coming was scarcely noticed. It is worthy of remark at this point, however, that the pilots who came into the harbor late in the afternoon reported having encountered an unusually heavy sea outside the bar, which sign long experience had taught them to regard as the precursor of "dirty weather," as they expressed it. The interesting feature of this occurrence is, of course, that the waves caused by the storm then raging at sea below the Southeastern horizon had so far outrun the winds as to reach Charleston many hours in advance of the storm itself.

During the 24th cumulus and cirro-cumulus clouds prevailed. About 4 P. M. to 7 P. M. the sky was covered with cirrus and stratus clouds moving rapidly from the East, followed at midnight by a light scud flying from the Southeast. After midnight their character changed again to cirro-cumulus, which gave place, in turn, to a heavy mass of cumulo stratus, immediately preceding the storm and accompanied by lightning. Through the rifts of the storm clouds during the night cirro-stratus were observed, floating high above and moving independently of the former, as regards both speed and direction.

There was nothing alarming in the appearance of the

clouds, nor in the force of the wind that guided their course, until some time after midnight. Whether it was the result of former association or of subsequent experience, however, it was afterwards recalled to mind by more than one late watcher that there was a peculiar something, "a feeling in the air," a subdued menace in the first whisperings of the wind that faintly challenged attention and hinted vaguely of coming ill, even while it failed to make the warning understood by unskilled and unsuspecting minds. The import of these hints, if hints they were, began to be expressed in plainer terms an hour or two later; when old residents of Charleston, who were aroused from sleep by the force of the blasts that occasionally broke forth upon the city, recognized in the southing of the winds the indescribable but characteristic sound which always heralds the coming of a gale.

The wind did not attain a velocity of twenty-five miles an hour until 1.30 A. M. on Tuesday, at which time the storm is officially regarded as having commenced in earnest. From that hour until about 4 A. M. it decreased in violence, or rose and fell fitfully, subsiding for a space between 2.30 and 3.30 to seventeen miles an hour. By 4.30 A. M. it had again increased to thirty-five miles an hour, and from that time until about 9 A. M. continually developed force by degrees which were marked by the tell-tale signs and sounds that filled the air on every side.

Looking out into the gloom during the closing hours of the night and the early hours of the morning, the eye encountered a scene never to be forgotten, and which the beholder would scarcely care to see twice. The powers of the air seemed to have been loosed for a carnival of havoc, and earth and heaven, the winds and the waters, warred together in a fury of blind rage. Dense clouds now obscured the sky, and swept along scarcely missing the house tops, pouring forth sheets of blinding, driving rain, which were themselves caught up as they fell, torn into shreds of spray, and scattered hither and thither like wildly eddying snow drifts. The trees which lined the streets and filled the yards and gardens of the city were in full leaf,

and swaying heavily and incessantly to and fro, their boughs rising and falling and wildly lashing each other, formed a conspicuous feature in the troubled landscape. The leaves were never still, and it required but little stretch of fancy to regard them as shuddering with terror and seeking to tear themselves from their frail stems and fly away, when a blast of unusual force would swoop down upon them like a bird of prey upon a flock of trembling doves. At dawn the streets were already thickly strewn with boughs which had been broken and hurled to the ground, where they lay interspersed with the quantities of loose leaves, signs, slates and tiles, which had first yielded to the force of the gale. The wind by this time had attained, at intervals, a velocity of over forty miles an hour. The few ice and milk vendors, and other persons whom business or curiosity led abroad at so early an hour, found no little difficulty in picking their way and avoiding the missiles which occasionally fell around them.

About 7 A. M. the wind increased to over fifty miles an hour, and rapidly augmented in force during the succeeding two hours. The work of destruction increased in proportion. The air was soon filled with flying missiles. Tiles and slates were torn by thousands from the house-tops, and hurled to long distances, skimming along, as was said by an observer, like flights of terrified swallows. Loose bricks and fragments of mortar from chimneys and copings were wrenched from their places and showered down into the yards and streets, or crashed upon the house tops with thunderous sound. The tin roofs were marked for general destruction. Forced from their fastenings at an early stage of the storm, many of these coverings were ripped up by swift degrees, rolled or crumpled together, and blown away like so much paper. When held down by an edge or corner, the effect of the wind in their folds, as the great sheets flapped and pounded about on the hollow roofs, was alarming indeed. After the storm great rolls of this material lay scattered about the city, looking not unlike carcasses of some strange monsters of the deep



that had been washed into the city by the waves, and stranded and left to die.

The roar of the tempest cannot be described. Vast and unceasing as that of a mighty cataract, it conveyed to the ear a sense of the majesty and overwhelming power of the element whose voice it was which was scarcely heightened by the visible tokens of that power so abundantly displayed in every direction. Even the thunder that followed the occasional lightning's flash scarcely deepened its volume, and rolling away into darkness and distance, was swallowed up in the one unending and angry roar, as waves of sound upon a sea of sound.

The audible but invisible torrent poured over and across land and sea, filling the vault of heaven like a flood that had broken its bounds in upper air and was impelled to earth by the pressure of a greater flood behind. And, as if to add another element of terror to the tumult, there was heard for hours the constantly repeated, heavy booming of the alarm bells of the city, striking at short intervals as their sensitive machinery responded to the fitful currents of the electric wires by which they were controlled. The cause of these continuous alarms was not generally understood, and they added greatly to the distress of many of the citizens, who could not divine their meaning and whose imagination suggested countless forms of calamity.

With every perceptible increase in the force of the wind, the anxious watcher felt that his house must go down before it, and many a devout heart spent the night in alternate thanksgiving for danger passed and prayer for deliverance from that which momentarily threatened. Many were they who had watched for the morning, in the hope that light would bring an end to the trying ordeal of the night. This hope was doomed to bitter disappointment. Tearful eyes looked forth from shattered and leaking windows after dawn to see no token of diminishing fury in the winds, or in the clouds wildly rushing overhead.

After eight o'clock the gale apparently redoubled its force,

and the occurrences of the night were multiplied and intensified in character. Trees that were already stripped of their leaves and dismembered of their limbs, broke under the increasing strain; or, torn from their deeply anchored roots, crashed heavily to the ground. Fences were prostrated like cardboards; shutters and signs were brushed from their hinges; windows and doors were burst in, and the rain streaming through gaping roofs made miniature cascades down the walls and stairways. At 7.30 A. M., it is stated by one careful observer, comparatively slight damage had been caused along the Eastern water front, which of course was most exposed to the force of the waves. None of the wharf sheds had been blown down, although the tin roofing had been ripped from several. All the vessels moored along the river front were riding freely and in apparent safety, save one or two yachts which had not been secured, and were wrecked in consequence. At 8.45 the same observer revisited the scene, to find that but a single shed was standing intact, and that the structures along the entire river front were demolished. "Everything lay in ruins; pier heads, sheds, vessels, offices, and docks, presented one mass of indescribable confusion."

The scene in the harbor at this time, as viewed from the Battery, has been described as one of "awful grandeur." The gale was blowing from the ocean directly into the mouth of the harbor, and the force of the wind, acting with the flood tide, impelled the waters before it with inconceivable force. Looking seaward, the whole surface of the harbor appeared as a sheet of boiling, rushing foam, heaving with the swell of the great billows beneath, or torn in flakes from their mounting crests and driving landward like flying sails.

At the height of the tempest the Norwegian bark *Medbor*, having slipped her anchor at the Quarantine Station, drove into the harbor "like a chip on the surface of a whirlpool," and whirling round and round at the wind's will as she came, was stripped of her rigging and wrecked within a stone's throw of the shore, the crew being rescued with great difficulty.

The great waves, rolling inward without resistance, struck the sea wall of the Battery in swift succession, with a deafening roar, and, bursting into "huge water-spouts," were hurled against the fronts of the residences along the street, smashing in windows and doors, levelling fences, and inundating the lawns and gardens. Large flagstones from the promenade along East Battery were broken up and washed across the street. Not more than two or three houses on either thoroughfare escaped; most of them were unroofed in whole or in part. The bathing house near the foot of King Street was swept away and completely wrecked. One of the notable features of the storm in this quarter was the extraordinary rapidity with which the water rose, the incoming sea being likened by one observer to the rush of a tidal wave.

At high tide, half-past seven o'clock, the sea was on a level with the top of the Battery wall, while the water on the inside was a few inches from the top. The ground floors of the houses were from three to six feet under water, which was rushing through Water Street with the speed of a mill-race. White Point Garden was of course wholly submerged, and boats could have been rowed from place to place anywhere along South Battery. All the streets around the water front of the city were covered to varying depths.

In the city, meanwhile, the work of destruction had proceeded apace. About seven o'clock the tall spire of the Citadel Square Baptist Church was overturned, and falling upon the three and a half-story residence of Mr. Thomas D. Dotterer, at the corner of Meeting and Henrietta Streets, cut off the piazzas and front wall of the three upper stories, leaving their interior wholly exposed to view from the street. A little later, about 8.30, perhaps, the gilt ball and weather-vane of St. Michael's Church, which had adorned the steeple and withstood the storms of one hundred and twenty years, at an elevation of one hundred and seventy feet, fell heavily to the sidewalk on Broad Street. The roof of the Church was almost stripped of its heavy slates during the storm, to the imminent peril of the passers-by. The spire of the Ger-

man Lutheran Church, on the West side of Marion Square, was strained several feet from the perpendicular, its heavy iron summit being broken off and left pendant. Scarcely a house in the whole city escaped damage to an extent, measured by cost, ranging from a few dollars to thousands. Many columns of THE NEWS AND COURIER were filled for days after the storm with mere mention of the buildings that were injured.

About nine o'clock there was an unexpected and gladly welcomed respite. The wind, which had been blowing from the East during the height of the storm, for an hour or two previously, suddenly subsided almost to a calm. The rain ceased, and children went forth to play, and to wonder at the wreck around them. Groups of men gathered on the street corners to talk over the experiences of the night, and to recount the losses they had suffered. Families, friends and neighbors exchanged messages of anxious inquiry or congratulation. Housewives set about preparing the delayed morning meal from the stock on hand, in the enforced absence of hucksters and bakers and milkmen, who were prevented from making their usual rounds.

The deceitful respite was of short duration, however, and ended almost as abruptly as it began. The period of calm lasted forty minutes. Almost at a breath, the tempest swooped down from a new quarter, the West, rapidly veering to the Northwest, with less force than before the calm, indeed, but with enough to affect great damage along the Ashley River. Roofs, trees, fences, wharves and ships that had withstood the force of the storm before, owing to favored positions, yielded to the attack from a new direction, and wreck was piled on wreck, ruin heaped on ruin.

Two sloops were lifted up by the high tide and deposited across Chisolm's Causeway, effectually barring the passage of wagons after the waters receded. The iron steamship *Glennlivet* was torn from her moorings and driven up the Ashley River, where it came into collision with the new bridge, then approaching completion, and swept away

several hundred feet of the trestle approach on the Charleston side. The complete destruction of the entire water front is best indicated by the statement of the fact that when the steamer *Delaware*, Capt. Winnett, came into port, late in the afternoon after the storm, it was found that there was but one wharf which she could approach, and that escaped total destruction because one of its piers was built of granite.

When the gale finally subsided, a little after noon, and the clearing sky gave token that the calamitous visitor was really gone, it was evident that the work of destruction had been indeed widespread and severe. The streets were now so obstructed by fallen trees and fences that vehicles could not pass; and pedestrians could hardly pick their way along. The lower levels were flooded, the drain pits being choked with debris, and the water ran knee-deep in many places or stood in muddy pools. The intricate web of electric wires that had stretched from pole to pole in every direction, were tangled in hopeless confusion overhead or under foot. The surface of the ground everywhere was carpeted with battered green leaves, while the trees that remained standing showed strangely bare against the summer sky. Broken signs, shutters and sheets of tin from the roofs hung from the sides and tops of houses and stores. Looking from holes in the roof of a dwelling, one saw the heads of curious neighbors, alike intent on observation, protruding from the roofs all around him.

Perhaps, however, the best idea of the extent of the wreckage in the city can be obtained from the bare statement that during the week following the storm over 10,000 cartloads of vegetable debris alone were hauled from the streets, besides the vast quantities that were washed away by the tremendous rainfall that accompanied the storm, and that followed it a day or two later. The total visible damage inflicted upon the city was estimated at \$2,000,000, and this amount did not include the damage inflicted upon furniture, &c., of which no estimate could be made.

The shipping in the harbor suffered heavily, as did the

railroads leading out of the city. The details of loss cannot be given here.

At Sullivan's Island, owing to its exposed situation, the full force of the wind and waves was of course experienced. The damage was very great; the whole island was under water, and many residents were driven into the upper stories of their homes. The waves undermined and destroyed many houses, while others were lifted bodily and removed to a considerable distance. The people on the island being cut off from the mainland, and having despaired of life itself for hours, reckoned the loss of property as of little consequence.

It should be noted here that the water which was so suddenly swept into the harbor after daylight, was as suddenly carried out to sea again by the change in the direction of the wind that took place about two hours after the time of high water. This timely change probably saved Moultrieville on Sullivan's Island from total destruction, and prevented the loss of many lives.

At Mount Pleasant the damage was also great; while the farms on the islands around the city suffered heavily by the destruction of houses, and crops of all kinds.

The occurrence of the interval of calm in the midst of the storm, together with the reversal of the direction of the wind immediately following it, first suggested the rotary character of the gale, and this being afterwards clearly established placed it in the category of cyclones. As there is still some misapprehension in regard to the true character of the storm, however, it is necessary to define it clearly, in order to distinguish it from the tornado or whirlwind which so frequently visits the interior portions of the United States.

The diameter of the tornado is seldom more than a few hundred yards; and, perhaps, never so much as a mile. The great circle of the cyclone, on the other hand, is from one hundred to five hundred miles in diameter, and sometimes one thousand miles. Tornadoes develop inland, but often pass out to sea before exhausting themselves. The

cyclones are ocean storms, formed upon its bosom and rushing landward. Originating under the tropics, those which form North of the equator move into the Atlantic Ocean on a long parabola which sweeps in against the South Atlantic coast and then out to sea again. Those which originate South of the equator take a precisely opposite course, bending in towards the coast of South America and off into the South Atlantic.

No cyclone has ever been known to cross the equator. The circular motion of the winds in the Northern bound cyclone is invariably, like the motion of the wind in the tornado of the same latitude, from right to left, or against the hands of a watch placed in a horizontal position. South of the equator the motion is from left to right, or in the same direction as that of the hands of a watch.

The cyclone in this latitude may, therefore, be generally described as a broad *belt* of wind moving at a high rate of speed around a great circle of many miles diameter, and having, as was shown at Charleston, an extended area of calm at the centre. During the passage of the cyclone the barometer oscillates in a remarkable manner, rising and falling rapidly, so that a great barometric oscillation nearly always announces the approach of a tempest. The most rapid fall begins from three to six hours before the passage of the centre. The barometer is lowest near the middle of the storm area, and begins to rise before the strength of the cyclone is expended. The rise of the barometer after the storm is usually as rapid as was its fall on the approach of the storm.

Keeping in view this sketch of the salient features of a cyclone, the character of the storm of August 25th plainly appears, and its course may be traced in conformity with the observations already made, and with the record following, which is derived from official sources.

Following the law above stated, the cyclone under consideration formed at sea, some distance to the Southeast of Florida, and gradually moved Northward and inward toward the Florida coast, its approach being first indicated to the



Signal Service Bureau at Washington by the report of the Observer at Jacksonville, at 7 o'clock on the morning of the 24th, that the barometer had suddenly shown the abnormal fall of .15 during the night; a light rain and fresh Northeasterly wind of sixteen miles an hour being reported at the same place. The wind at Key West, Florida, at the same time, was light Northerly, and at Savannah, Georgia, light Northeasterly. Fearing from these indications that a disturbance might be coming on upon the coast, the Signal Service Officer at Washington called for special midday reports from several of the stations on the South Atlantic coast, upon the receipt of which reports cautionary storm signals were ordered to be displayed early in the afternoon; the order reaching Charleston at 2.20 P. M., as stated at the outset of this article. Before the receipt of the order at Jacksonville, however, the storm itself had already reached that point. The afternoon reports of the Signal Service plainly showed the centre of the cyclone to be Northeast of Jacksonville and South of Savannah; a brisk Northeast wind of nineteen miles blowing at Savannah, while a gale of from twenty-eight to forty miles an hour from the West swept over Jacksonville from 1 to 6 P. M., after which latter hour it gradually moderated. The Signal Service Office regards the conditions prevailing over the United States at this time as presenting some of the most remarkable features ever witnessed, the situation being summarized as follows:

"A West India cyclone was raging on the Georgia coast with the barometer .30 below the normal; winds increasing in force and light rains. A long narrow trough, in which the barometer was .20 to .30 below the normal, extended from Northeastern Texas to the Gulf of St. Lawrence. Within this trough were several small depressions bounded by the isobar for 29.70; the barometer was lowest over the Gulf of St. Lawrence, with the isobar for 29.50 bounding the storm centre; heavy rains and severe thunder storms marked this trough. The barometer was highest and still rising in Dakota and Manitoba. The temperature was slightly below the normal on the Georgia and South Caro-



lina coast, and was from  $5^{\circ}$  to  $12^{\circ}$  above the normal in the Southern part of New England, in the Middle Atlantic and East Gulf States, the Ohio Valley and Tennessee, and in North Carolina. Then again, to the North of this region, the temperature was from  $10^{\circ}$  to  $20^{\circ}$  below the normal."

At midnight of the 24th the centre of the storm had moved slightly Northward, and was near Savannah, where it may be said to have fairly entered the coast line. Its progress from that hour may be clearly outlined.

At Savannah the wind had increased in force to thirty miles at midnight of the 24th. At 4.30 A. M. of the 25th it was blowing fifty-six miles an hour from the Northwest. At Tybee the velocity of the wind was estimated at seventy-five miles.

At Beaufort, S. C., the storm lasted from about midnight of the 24th until 9 A. M. of the 25th, the wind blowing first from the Northeast, but changing about 6 A. M. to the Northwest, after which hour it raged with greatest fury. Most of the vessels in the harbor were driven ashore and damaged; the town was but little injured. The progress of the storm up the coast was marked by great destruction. All the low lands were flooded; the roads were rendered impassable; bridges were swept away; whole forests were levelled, it is said, and great loss was inflicted upon all standing crops, the damage to sea island cotton being estimated at fully three-fourths of the crop. The islands and mainland suffered alike, and in proportion to exposure to the force of the wind and tides. A number of lives were lost on the Carolina coast, twenty-one having been reported.

The centre of the storm was near Charleston at 7 A. M. of the 25th, and its passage was marked by the occurrences already described.

Georgetown first began to feel the force of the wind in earnest at 11 o'clock on the 25th, from the Southeast, the gale reaching its height, as reported, at about 1 P. M. The barometer at that hour marked 29.1, having fallen .3 of an inch in half an hour. The wind veered to the West at about 1.30 P. M., and the storm continued to be felt until 11 P. M. The force of the wind at this place was shown by lifting a

man bodily from the ground and carrying him a distance of fifty yards, finally dropping him uninjured. Much damage was suffered by the town.

At 3 P. M. on the 25th, the wind at Smithville, N. C., was fifty-five miles an hour from the Southeast, indicating the fact that the storm centre had followed a line to the West of that place. At 5.15 P. M., when the anemometer was blown away, it recorded the terrific velocity of ninety-eight miles an hour, as reported by the Signal Service Observer. Between 5.15 and 5.45 P. M., it is estimated by the same authority to have reached 125 miles an hour.

At midnight of the 25th, the centre of the storm was North Northwest of Wilmington, and West of Hatteras. The force of the gale evidently missed Wilmington, as is shown by the fact that the maximum velocity of the wind at that place was officially reported at fifty-two miles an hour. It is also noteworthy that the greatest force of the wind was from the South, plainly indicating that the city was then in the extreme right (or East) quadrant of the cyclone. At Kitty Hawk "a Northerly gale prevailed from 2.30 A. M. until 9.45 A. M. on the 26th; at 4.10 A. M. a velocity of fifty miles per hour was recorded," and the gale re-entered the ocean near that place.

It would be interesting to trace the progress of the storm after leaving the North Carolina coast, as shown by the experience of vessels which subsequently reported having encountered it. It must suffice to say, however, that while during the 25th all vessels between N.  $30^{\circ}$  and  $37^{\circ}$ , and between the United States coast and the seventieth meridian, experienced furious gales, reaching at times hurricane force, from S. S. W., S. W., and S. E., in the early morning of the 26th the winds South of  $35^{\circ}$  N. shifted to N. and N. W., indicating that the storm centre had passed Eastward off the coast line. On the morning of the 26th the centre was about longitude  $70^{\circ}$  W. and latitude  $35^{\circ}$  N., or about 350 miles East of Hatteras. After reaching the ocean the rate of movement of the storm centre appears to have increased greatly, and by midnight of the 26th it was between W.  $60^{\circ}$  and  $65^{\circ}$ . During the 27th and 28th the storm

moved rapidly Northeastward, keeping clear of the coast, and disappeared on the 29th in the North Atlantic beyond the region covered by the Signal Service reports.

It is a matter of lasting regret that a complete record of the direction and force of the winds could not have been made at Charleston, where the utmost fury of the gale was certainly expended. About 8 A. M., however, the registering apparatus on the roof of the Signal Service Office was broken by the force of the wind, and no observations of the kind were recorded after that time. Sergeant Smith, the Observer at Charleston, estimates that the average hourly velocity from 7.30 to 7.45 A. M. was sixty-four miles. The last record made by the anemometer, at 8.04 A. M., was sixty-eight miles an hour. The greatest force of the wind was manifested after this time, however, and can only be estimated. It has been shown that the anemometer at Smithville registered ninety-eight miles an hour before it was likewise broken, and that the velocity of the wind was afterwards estimated at one hundred and twenty-five miles an hour. It is safe to assume that it nowhere exerted greater force than at Charleston, if that force may be measured by its effects.

The corrected barometer readings were as follows:

*Monday, August 24th.*

	INCHES.		INCHES.
7.00 A. M. ....	29.968	7.00 P. M. ....	29.869
11.00 " .....	29.990	11.00 " .....	29.834
3.00 " ..	29.922		

*Tuesday, August 25th.*

	INCHES.		INCHES.
7.00 A. M. ....	29.440	9.00 A. M. ....	28.768
8.00 " .....	29.231	9.10 " .....	28.758
8.05 " .....	29.186	9.15 " .....	28.708
8.10 " .....	29.131	9.40 " .....	28.748
8.30 " .....	28.962	10.00 " .....	29.794
8.40 " .....	28.868	11.00 " .....	29.330 *
8.50 " .....	28.778	3.00 P. M. ....	29.724
		7.00 " .....	29.731

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\* The fall in the barometer at 11 A. M. marked the passage of a brief thunder storm.

The record of the thermometer (Fahr.) was as follows at the hours of observation :

*Monday, August 24th.*

7.00 A. M.....83°	7.00 P. M.....84°
11.00 " .....88°	11.00 " .....81.5°
3.00 P. M.....83.4°	

Maximum for the day 89° Minimum 81.2°.

*Tuesday, August 25th.*

7.00 A. M.....77°	7.00 P. M.....81°
11.00 " .....74°	11.00 " .....80.6°
3.00 P. M.....77°	

Maximum for the day 83.4°. Minimum 72°.

DIRECTION AND VELOCITY OF WIND.

*Monday, August 24th.*

7.00 A. M.—East.....	10 miles an hour.
11.00 " —East.....	11 miles an hour.
3.00 P. M.—East.....	12 miles an hour.
7.00 " —East.....	14 miles an hour.
11.00 " —Southeast.....	17 miles an hour.

Holding Southeast from this hour (and indeed from some time before 10 o'clock) the wind recorded its actual progress in miles on the chart of the Signal Service Station as follows :

11.00 P. M. to midnight.... 20 miles.

*Tuesday, August 25th.*

Midnight to 1 A. M....24 miles.	4 A. M. to 5 A. M....30 miles.
1 A. M. to 2 A. M....23 "	5 " " 6 " .....38 "
2 " " 3 " .....18 "	6 " " 7 " .....47 "
3 " " 4 " .....23 "	7 " " 8 " .....52 "

For a few minutes between 7 A. M. and 8 A. M. the ane-

anemometer recorded a velocity of seventy-two miles an hour; and it should be noted that the figures in the table for the 25th do not record the highest *velocity* of the wind, which constantly varied, but the distance travelled by it between the hours named. Double velocity for a half hour, in other words, would have given the same result in any case, even though the wind had lulled entirely for the remaining half hour. The greatest force of the wind was felt in Charleston from the Southeast and from the Northwest, indicating that the storm centre moved over the city on a general Northeasterly line.

A great rush of cold air from the Northwest over the Middle Atlantic States ensued upon the passage of the storm. On the morning of the 25th killing frosts were reported in Minnesota and Dakota, and on the 26th snow fell in Pennsylvania.

The approach of another severe storm, from the Gulf of Mexico, was indicated on the morning of the 29th. On the morning of the 30th the centre was a little Southeast of New Orleans; on the morning of the 31st it was North Northwest of Jacksonville and Southwest of Savannah. By midnight the centre had passed off the Carolina coast, accompanied by a very heavy fall of rain, which caused much damage in Charleston by pouring through the roofs broken by the cyclone.

With the exception of the extreme Northwest, the rainfall for August, 1885, was unusually heavy over the central and Northern portion of the country East of the one hundred and fifth meridian. It was also very heavy along the coast of South Carolina and Georgia. At Charleston the monthly precipitation was 19.18 inches, or nearly three times the average for August at this station, exceeding by more than four inches the largest monthly precipitation that had occurred since the Signal Service Office was established here, in 1871. The precipitation on the 25th was 4.29 inches, of which 4.020 fell between the hours of 10 A.M. and 2 P.M., while 7.58 inches fell from the 29th to the 31st inclusive. Six inches fell at Hardeeville in one day, the 31st.

The remainder of the story is soon told. The sun which shone on Charleston during the afternoon of August 25th looked down on a wrecked city. The storm was over and gone, but the calm which followed was such as "reigned in Warsaw," and in the South for many a dreary year after the war. The brave, beloved city which had been swept by fire, stormed at with shot and shell, and occupied by a hostile army, within a quarter of a century, had now been buffeted for hours by raging seas, and shaken to its foundations by the most fearful storm that has ever visited our coasts within the knowledge of man. It was naturally to be expected that the inhabitants of the city would be dismayed by the extent of their loss. But it was not so. With the rising of the morrow's sun the work of repair and reconstruction began hopefully and bravely. Where all had suffered there were none to weep over a neighbor's woes. Few complaints were uttered; despair found no place even among the ruins. Offers of assistance were promptly made by the Governor of the State and from various other authorities. The answer was as promptly returned in each instance that Charleston was strong enough to help itself; and help itself it did so effectually that the catastrophe scarcely interrupted the ordinary course of business beyond the few hours required to repair the railroad tracks leading out of the city, and to clear the rubbish out of the way of the vehicles and pedestrians on the streets. Wrecks were raised or cleared away, roofs were patched or repaired, wharves were rebuilt, the debris was removed, and at the end of a month a stranger passing through the city found but few traces of the storm. Only a few weeks later a disastrous tornado destroyed the town of Washington, in Ohio. Among the first cities in the country to offer aid in money was Charleston, which had so far recovered as to be ready to extend help to others in misfortune!

CARL MCKINLEY.

## THE TORNADO OF 1761.

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The following description of a destructive tornado which swept around Charleston in 1761, was published in THE NEWS AND COURIER, September 12, 1885, and was taken from the manuscript diary of the Rev. Oliver Hart, in the possession of Mr. William G. Whilden. It clearly illustrates the difference between the cyclone and the tornado, and is given place in the Year Book for this reason and because it possesses peculiar interest as being a record of the first storm of the kind in the United States of which any account has been preserved.

The record in the Signal Service Office, at Washington, commences with a similar storm observed at Northford, Connecticut, June 19, 1794; the third on the list occurring at Charleston again during the afternoon of September 11, 1811. Mr. Hart's graphic and too brief narrative is as follows:

“On Monday, 4th of May, 1761, about half an hour after 2 P. M., an hour and a half after new moon, and very near the time of low water, a most violent whirlwind, of that kind commonly known under the title of typhones, passed down Ashley River and fell upon the shipping in Rebellion Road with such fury and violence as to threaten destruction to the whole fleet. In the ‘ship news’ below is an account of the damage done by it:

This terrible phenomenon was first seen by many of the inhabitants of Charles-Town coming down Wappoo Creek, resembling a large column of smoke and vapor. Its whole motion was very irregular and tumultuous, as well as that of the neighboring clouds, which appeared to be driven down in nearly the same direction (from Southwest) and with great swiftness. The quantity of vapor which composed



this impetuous column and its prodigious velocity gave it such a surprising momentum as to plough Ashley River to the bottom and lay the channel bare, of which many people were eye witnesses. This occasioned so great a flux and reflux as to float many canoes, boats, perriaugres and even schooners and sloops, which were then lying dry and at a distance from the tide. When it was coming down Ashley River it made so great a noise as to be heard by most of the people in town, which was taken by some for a constant thunder. Its diameter at that time has generally been judged to be about 300 fathoms, and its height to a person in Broad Street  $35^{\circ}$ , though it increased as it went towards the road; and when it came down towards White Point, though it was then nearly in the middle of Ashley River, it impelled such a vast body of water out of its place as to make the tide run for an instant several feet perpendicular in all the docks along the Bay, and even up Cooper River, above Mr. Gadsden's. About this time it was met by another gust which came down Cooper River; this was not of equal strength or impetuosity with the other, but upon their meeting together the tumultuous and whirling agitations of the air were seemingly much greater, inas-much as that the froth and vapor seemed to be thrown up to the apparent height of  $35^{\circ}$  or  $40^{\circ}$  towards the middle, while the clouds that were driving in all directions to this place seemed to be precipitated and whirled round at the same time with incredible velocity. Just after this, it fell on the shipping in the road, and was scarce three minutes in its passage; five vessels were sunk outright, and his Majesty's ship *Dolphin*, with many others, left their masts.

All this great damage to the shipping, which is only reckoned at twenty thousand pounds sterling, was done almost instantaneously, and some of those that were sunk were buried in the water so suddenly as scarce to give sufficient time to those who were below to get upon deck. Whether was this done by the immense weight of this column pressing them instantaneously into the deep? or was it done by the water being forced suddenly from under them, and



thereby letting them sink so low as to be immediately covered and ingulphed by the lateral mass of water?

The strong gust from the Northward which checked the progress of this pillar of destruction in its way from Wappoo Creek, seems to have been sent by Providence for the preservation of Charles-Town, which, had it kept its then direction, must have been driven before it like chaff. Another memorable instance of Divine favor is the small number lost of those that were on board the vessels in the road, of whom we cannot learn there were more than four, viz: Mr. Nathaniel Polhill, of Georgia, a passenger in the *Polly and Betsy*, Capt. Muir, and Robert Kay, Capt. Muir's nephew, a sailor from on board the *Elyzabeth*, Capt. Mallard, and a boy belonging to the *Success*, Capt. Clarke.

From the shortness of the time we cannot give a particular account of the rise and progress of this tremendous column. About noon it was seen near Spoon-Savannah, upwards of thirty miles West by South from Charles-Town. It destroyed Mr. George Summer's house on his plantation at Stono, and on James Island carried away a large new two-story house with two stacks of brick chimneys belonging to the estate of the late Mr. Hutson, and all the negro houses and other buildings on the plantation; Mr. William Glen's buildings, &c., were served in the same manner, and it carried off the roof of Mr. Henderson's house and all the outbuildings. Many, both white people and negroes, were killed or hurt. Nor did the cattle escape, numbers of which were found dead in the fields.

In several parts of its course it left an avenue of a great width, from which every tree and shrub was torn up; great quantities of leaves, branches and large limbs of trees were sent furiously driven about and agitated in the body of the column as it passed along.

The sky was overcast and cloudy all the forenoon of Monday, and about 1 o'clock it began to thunder, and continued more or less till after 3. As soon as the damage done in the road was perceived, the Governor sent orders to the missionary to provide and get down as many boats and



hands as possible. Every one seemed to vie with each other who should give the first and most effectual assistance.

The fleet, as it was the largest and finest, was likewise thought to be the richest that ever was cleared out from Charles-Town. By 4 o'clock the wind was quite fallen, the sun shone out and the sky was clear and serene. We could scarcely believe that such a dreadful scene had been so recently exhibited, were not the sinking and dismayed vessels so many striking and melancholy proofs of its reality.

A storm of this kind has seldom or ever been known in Charles-Town, but the vestages of such are to be seen in the woods in more places than one, both in this and the neighboring provinces.

Sunk, 5, viz: Snow *Polly and Betsy*, William Muir, for London; ship *Daniel*, James Lake, Portsmouth; snow *Success*, Thomas Clarke, Cowes; *Britania*, Thomas Wilson, Bristol, and sloop *Patty*, arrived this day from Providence.

Dismasted, 6: His Majesty's ship *Dolphin*, Capt. Marlowe, the convoy; ship *Thomas and Sarah*, John Jackson, for Cowes; *Elyzabeth*, John Mallard, Cowes; ship *Tyber*, Peter Crombie, Cowes; *Queen of Portugal*, John Simpson, Cowes; snow *John*, George Evans, London.

Lost both topmasts, 2: Snow *Eglantoun*, Archibald Robertson, Bristol; brig *Two Friends*, Alexander Young, Orkney.

Lost mizzenmasts, 2: Steamships *Manchester*, James Chambers, London; *Thorntoun*, Richard Gilchrist, London.

Lost foremast, 1: Ship *Heron*, Patrick Craw, Portsmouth.

Lost maintopmast, 1: Ship *Henrietta*, John Rains, London.

Sunk, 5; dismayed, &c., 12; safe, or received little hurt 25; total in Rebellion Road, 42 vessels."



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